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(12) **United States Patent**  
**Mershon**(10) **Patent No.:** **US 7,303,759 B2**(45) **Date of Patent:** **Dec. 4, 2007**(54) **COMPOSITIONS AND METHODS FOR  
REDUCING BLOOD AND FLUID LOSS  
FROM OPEN WOUNDS**(75) Inventor: **Millard Marsden Mershon**, Bel Air,  
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represented by the Secretary of the  
Army**, Washington, DC (US)(\*) Notice: Subject to any disclaimer, the term of this  
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U.S.C. 154(b) by 118 days.(21) Appl. No.: **10/178,448**(22) Filed: **Jun. 20, 2002**(65) **Prior Publication Data**

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22, 2001.(51) **Int. Cl.****A61F 13/00** (2006.01)**A61K 9/70** (2006.01)**A61L 15/16** (2006.01)(52) **U.S. Cl.** ..... **424/443; 424/449; 424/448**(58) **Field of Classification Search** ..... **424/443,**  
**424/449**

See application file for complete search history.

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*Primary Examiner*—Isis Ghali(74) *Attorney, Agent, or Firm*—Elizabeth Arwine(57) **ABSTRACT**

The invention described herein relates to methods for reduc-  
ing and/or stopping bleeding or fluid loss from open wound,  
denuded tissue, or burned skin, comprising the step of  
applying to the open wound, denuded tissue or burned skin  
a gel-forming composition comprising at least one of the  
following compositions: a polyacrylic acid having the struc-  
tural formula  $[\text{CH}_2=\text{CHCO}_2\text{H}]_n$ , where n is between  
10,000 and 70,000; a polyacrylic acid and a desiccated water  
soluble organic or inorganic base; polyacrylic acid and a  
desiccated poorly soluble basic salt, and a polyvinyl alcohol  
having the structural formula of  $[\text{CH}_2=\text{CHOH}]_n$ , where n is  
between 15,000 and 150,000. When the gel-forming com-  
position is applied to the open wound, denuded tissue, or  
burned skin, its ions react therein in the presence of water  
from blood or body fluid therein to form an aqueous gel or  
mucilage having sufficient viscosity and adhesiveness to  
cover and adhere to the open wound, denuded tissue, or  
burned skin so that bleeding or fluid loss is thereby reduced  
and/or stopped.

**44 Claims, No Drawings**